South • Australian • Apple • Users • Club

APPLESAUCE

August 1990 • $2.50

Registered by Australia Post Publication No. SBH0229

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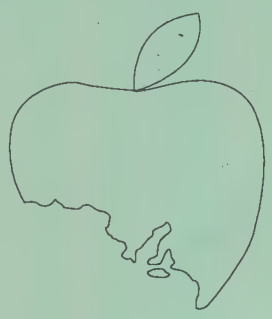

Membership Fees

Individuals or Schools $30.00
Corporations / Businesses $50.00
Extended memberships available

Library Disks

Public Domain disks
Apple][(5.25") $4.00 each
Apple][GS (3.5") $7.00 each
Macintosh $7.00 each
(10 or more $5.00 each)

Boxes of 10 blank disks
3.5" DSDD $23.00
3.5" DSHD $50.00
Disk Catalogues 1990 $2.00 each

All programs supplied on club disks have been written using original Apple equipment; no guarantee is given by the club for use of programs on Apple compatible computers.

Postal rates for disks

1 to 9 disks add $2.00
10 disks add $3.00
Greater than 10 disks add $4.00
The above rates include Australia Post insurance worth $50.
Please add an additional $2.50 for insurance cover worth $200.

Public domain disk purchases of $20 or more from S.A. country members (Postcodes 5200 or greater) or interstate members will be posted FREE. The additional insurance charge of $2.50 is still payable if you require the extra cover.

Meetings

Are held on the 1st and 3rd Fridays of each month at the rear of the Prospect Town Hall, Prospect Road, Prospect.

Information page

Contributing Articles

Articles will be accepted from anyone wishing to contribute material for publication in the newsletter, provided it is oriented towards Apple computers. It can be of any topic relating to Apple computers, and may be typed printed normally spaced on standard A4 paper, or preferably on disk as a plain text document. Send articles to the Newsletter Editor c/- above postal address or hand to a club committee member at any meetings. All disks will be returned.

Members who contribute an article with a length of two pages or greater will receive their choice of club disk from the library on request.

Advertising

Small advertisements (quarter page or less) from financial club members will be accepted and published free of charge provided they are signed by the person(s) placing the advertisement.

Business advertising rates are by negotiation or as follows:
1/4 page $18.00
1/2 page $30.00
Full page $50.00
Back cover $70.00

All advertisements will be printed under the proviso that they do not conflict with the best interests of the Club.

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Editorial

Bill Wardrop

Well, here it is, August already. This year seems to be really flying by. There are just so many things I had intended to have done by now that are still on the "one day" list. But enough of that!

It is pleasing to note that we have a new advertiser this month. Status Graph have taken out a full page advertisement for the DiskDoubler program. I wonder if it is as good as they say. My disk is almost full and would certainly benefit from an increase in capacity, but I wonder about the loss of speed as the files are compressed and expanded. The Mac Plus is slow enough already. Nevertheless I am seriously considering giving it a try.

While on the subject of software, I mentioned a couple of issues back that there is an upgrade to version 1.2 of Adobe Type Manager which purports to overcome the inconsistencies of type spacing which occur at times. According to Australian MacWorld the upgrade can be had by seding $10 and your original disk (You do have one don't you?) to:

Lorna Morgan
Infomagic Pty Ltd
Unit E, 5 Skyline Place
Frenchs Forest NSW 2086

Once again I will be sending off for that to improve my printing with the ImageWriter II.

Best wishes 'til next month.

Don't forget by postal address for sening in those much needed articles.

The Editor,
Applesauce,
PO Box 303,
St. AGNES SA 5097

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APPLESAUCE

Presidential Pen

A U G U S T 1 9 9 0

You will be pleased that we have kept to our word by having the membership survey published this month. What remains is to encourage you, the member, to help us by completing the details and returning it to us as promptly as possible. We have aimed at keeping the task for you as simple as possible by using tick boxes wherever possible. Please take the time and effort to help us with this task.

We obtained several training packages from the Sydney User Group Convention. The packages are complete with 3.5" disk and audio tape combination. All are for Macintosh only. The subjects covered are from basic learning of the Macintosh, to Word 3.0, Works, and More. Dino Porcaro has written a series of articles that we shall be publishing in the next few Applesauce Newsletters. These cover basic to experienced users as there are some packages that come in various levels of training.

Brenton Smith has been improving our Mac PD library with material that he has been able to extract from some CD ROM disks of American User Groups. Also the new PD for Apple][has been enhanced thanks to the efforts of David Pettinger and Keith Zerna.

The club has quite a collection of Demo software covering many applications and there has been very little call for this of late. We have decided to drop the price to $3.00, which covers the cost of the media and a very small copy fee. All it requires is a phone call and I will arrange to bring a copy of whatever you order to the meeting. We published a list of available applications in this year's catalogue. The Club has obtained several more demo's since that time, such as MacroMind Tour.

At the last two meetings we have been introduced to MIDI by Geoff Peters. The intention of these sessions was to judge the interest in this subject by the members. We are now to set up a Special Interest Group for MIDI enthusiasts and those that would like to learn more about the subject. The first meeting will be advised via the Applesauce magazine.
The August general meeting was a little too long for some (most). Mike Overton presented HyperStudio on the IIgs, and then Geoff Peters did his MIDI intro - that developed into an extended session due to the interest of some members. We do apologise to those that we not interested in MIDI. I am sure that those that were interested in MIDI would have been happier to have extended the session. The Special Interest Group (SPG's) will now be the place for the MIDI interests.

We have a number of Committee members that have volunteered to operate small SPG's that will in effect be self help groups. Subjects offered to date include both Apple][and Mac interests. Suggestions to date include - EXCEL, Word 4.0, MIDI, CDEVS, INITS, DA's, PD software on club disks, Basic training in the use of the Mac, AppleWorks, GS Works, Adobe Illustrator 88, etc., etc. We will be seeking expressions of interest in these subjects shortly.

Best wishes
Bob Owen.

Members Advertisements

For Sale - Macintosh 2MB RAM, 800K internal drive, original manuals, HyperCard, and other software. $1400.00 ono. - Ian Bagust 2937183.

For Sale - Apple][e, with monn screen, 128k/80 col. card, and full width Apple printer. Tony, phone 380 5393.

Diary Dates

General Meeting (Apple II, GS and Mac)
Friday 3rd August, 1990 7:30 p.m.

- Demonstation PD Software
  INITS & cdevs for GSOS
  new DA's, by Grant Ward

- Question and Answer section
- Boxes of 3.5" disks for sale
- All new Apple][, GS and Macintosh public domain disks for sale
- Free tea, coffee and biscuits
- All are welcome - Mac users too!

Committee Members Only
Meeting will be at the airport location on Friday 10th August 1990 at 7:30 p.m.

Macintosh Meeting
Friday 17th August 1990 at 7:30 p.m.

- INITS & cdevs, talk by Chrisian Legg
- Demonstration of game "Cosmic Osmo" by Brenton Smith

- Question and Answer section
- Boxes of 3.5" disks for sale
- Macintosh public domain disks for sale
- Free tea, coffee and biscuits
- All are welcome

Newsletter contributions may be submitted to any club committee member on paper or disk. Articles on disk can be copied onto club disks at meetings. All disks will be returned to you as soon as possible.

Deadline for next Applesauce
10th August 1990

Note

New Public Domain Disk Prices

Apple][$4.00 each
Apple][GS $7.00 each
Macintosh $ 7.00 each

See 'Disk Catalogue 1990' for further details

New Color Image Compression Software From Kodak

Now KODAK COLORSQUEEZE™ Image Compression Software saves memory, minutes and money for Macintosh II computer users.

You can compress 24-bit PICT and TIFF files up to 50 times (depending on the amount of detail in the image) and retain remarkable image quality. Store approximately 65 compressed images on an 800K diskette.

KODAK COLORSQUEEZE Software is fast: compress or uncompress a 768K image on a standard Macintosh IIcx computer in less than forty seconds. Plus, you can quickly view multiple images with our unique "thumbnail" files. Conforms to emerging JPEG international standards.

Special offer to MNS readers: Order now and save $25 off the regular price. Regularly $179, it's yours for just $154 if you order by August 1, 1990. Use your VISA or MasterCard and call toll-free 1-800-233-1650, Ext. J (in NYS: 1-800-233-1647, Ext. J) 8-5 EST.

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ELECTRONIC PHOTOGRAPHY DIVISION

Apple][Series
Handy Peeks, Pokes and Information.

from David Pettinger

POKE 33,33 Text window width for editing
POKE 33,40 Text window width - normal
POKE 216,0 Resets error flag for type of error
PEEK (222) Error code for type of error
POKE 50,128 Make LISTings and CATALOG invisible
POKE 214,255 Make Program run when any command is issued
POKE 2049,1 Make first program line list repeatedly
POKE 1010,102:POKE 1011,213
Makes reset RUN
POKE 1014,165:POKE 1015,214
Makes '&' = LIST
POKE 44505,234:POKE 44506,234
Reveal deleted file names in catalog marked with 'C'
POKE 44452,24:POKE 44605,23
Allows 20 names in catalog before pause
POKE 44599,234:POKE 44600,234
Stop catalog at each filename and wait for a keypress
POKE 44596,234:POKE 44597,234:POKE 44598,234 Cancel catalog pause when screen is full
POKE 40514,52 Allows binary greeting program

CALL-1008 (FC10) Move cursor one space left
CALL-1036 (FBF4) Move cursor one space right
CALL-922 (FC66) Move cursor one space down
CALL-998 (FC1A) Move cursor one space up

POKE 49232,0 Graphics Mode
POKE 49233,0 Text Mode
POKE 49234,0 Full Screen Graphics
POKE 49235,0 Mixed Text/Graphics
POKE 49236,0 Page 1
POKE 49238,0 Lo-Res Graphics
POKE 49239,0 Hi-Res Graphics
POKE 230,32 Draw on Page 1

To avoid error message 'NOT DIRECT COMMAND' when typing CONT after CNTRL-C or STOP type POKE 51,6:CONT or POKE 51,6:GOTO ***

PR#6 Boot disk from basic
PR#0 Sends output to video
C600G or 6 <CNTRL> P Boot disk from MONitor

To find starting address after a BLOAD, PRINT PEEK (43634) + PEEK (43634+1) * 256
To find length of a BLOAD program, PRINT PEEK (43616) + PEEK (43616+1) * 256

Routine to reconnect DOS (if page 3 is over-written) CALL-25153 9DBFG

PR#3 Turn on 80 column card
PR#0: IN#0 Go back to 40 columns
CONTRL X Cancels line typed
HOME (CALL -936) Clears screen - cursor to left hand top of screen

Monitor Commands

F800.F900 Memory dump F800 to F900
F800:43 Changes F800 to 43
Dest <Start.End M Moves blocks of memory
Dest <Start.End V Compare two blocks of memory
Disassemble 20 lines :- 300L from $0300 L again to dump another 20 lines
CONTRL-B Back to Basic (program lost)
CONTRL-C Back to Basic (program intact)

To find current value of HIMEM: PRINT PEEK (116)*256+PEEK (115)

The negative equivalent of any positive decimal number address n is :- (n-65536)

To scroll outwards from the centre of the screen and clear screen :-
FOR I=1TO20:POKE32,20-I:POKE33,2*I:HOME:FORJ=1TO22:NEXT:NEXT

X=PEEK(-16384) Reads keyboard. If X>127 then a key has been pressed. X = the ASCII value of the key pressed.
POKE-16368,0 Resets keyboard strobe. Do after reading the keyboard.

CALL-868 Clears current line from cursor to right margin

$67-$68 Pointer to beginning of Basic program ($0801)
$73-$74 HIMEM

Continued next page

```
100 FLASH
105 PRINT"PRESS ANY KEY TO CONTINUE"
110 POKE-16368,0
115 WAIT-16384,128
120 NORMAL
125 REM * REST OF PROGRAM *
```

Routine to LIST line with error in it.

```
10 ONERR GOTO 63998
20 REM ** PROGRAM HERE **
50000 END
63997 LIST 00000:RESUME
63998 D=PEEK(121)+PEEK(122)*256-
7:C=PEEK(218)=PEEK(219)*256:
    H$=RIGHT$("0000"+STR$(C),5
63999 FORC=0TO4:POKE D+C,ASC(MID$
(H$,C+1,1)):NEXT:TEXT:POKE 33,33:
    POKE 216,0: GOTO 63997
```

Fibonacci Number Generators

by David Pettinger

The other day while I was having a much needed clean out of my filing cabinet, I came across the following two programs for Fibonacci numbers. They were written by me in 1982 during a computer course that I did. The programs are not particularly elegant, I did wince a little when I saw them, but still they are presented for you warts and all. Perhaps someone out there in Appleland can rewrite them in elegant fashion and present the results as a future article. Remember articles are always needed, so dust off your filing cabinets and dig deep.

```
10 PRINT"FIBONACCI SERIES-FIRST 10 NUM-
BERS"
20 PRINT" WRITTEN BY DAVID A. PETTINGER
MARCH 1982"
30 PRINT
40 LET T = 0
50 REM INITIALIZE COUNTER
60 LET A = 1
70 LET B = 2
80 PRINT A;B;
90 LET C = A+B
100 PRINT C;
110 LET T = T+1
120 REM INCREMENT COUNTER
130 LET A = B
140 LET B = C
150 IF T<8 THEN GOTO 90
160 END
```

```
10 REM THIS PROGRAM COMPUTES FIBO-
NACCI NUMBERS IN TABLE FORM
15 REM WRITTEN BY DAVID A. PETTINGER
MARCH 1982
20 PRINT"ENTER FIRST TERM"
30 INPUT A
40 PRINT"ENTER SECOND TERM"
50 INPUT B
60 PRINT"MAXIMUM NUMBER OF TERMS ="
70 INPUT N
80 PRINT
90 PRINT"TABLE OF FIBONACCI NUMBERS"
100 PRINT"TERM NUMBER", "FIBONACCI
NUMBER"
110 LET K=1
120 PRINT K,A
130 LET K=2
140 PRINT K,B
150 LET K = K=1
160 LET Q = A+B
170 PRINT K,Q
180 LET A =B
190 LET B = Q
200 IF K>N THEN 220
210 GOTO 150
220 PRINT"MAXIMUM NUMBER OF TERMS
REACHED"
230 PRINT

240 PRINT"TYPE 1 TO CONTINUE, 0 TO
STOP"
250 INPUT L
260 IF L = 1 THEN 280
270 STOP
280 PRINT
290 GOTO 20
300 END
```

Well like I said folks they are certanly not great, but they are functional. So now go to it and lets see some much improved versions for a future edition of the magazine.

David A. Pettinger.

********** DON'T RUN THIS **********

by Bill Curry

Reprinted from AUSOM news June 1990.

There are two types of people in the world ..... Those with willpower..... and those who can't resist doing things they're not supposed to do. This one liner will sort you into one of those categories.
Enter the program as it is, but delete all the spaces and use ? for print, if you want to fit it into one line. (239 chars)
If you are inquisitive, you can load the program and LIST it but I implore you, don't RUN it. Some of my best friends have been `sorted out'. Those who used willpower kept wondering what they missed and have become gibbering idiots and/or politicians. Those who just couldn't resist, are now not really sure that their computers are the same as they used to be, used to be, used to be.....

```
1 MESSAGE$="ZPV!GMBNJN
(!JEJPU/!!J!UPMD!ZPV!CPU!UP!"
SVO!UIJT/":HOME:FOR FUN=
1 TO 47:PRINT CHR$(ASC(
MID$ (ME$,FUN,1))-1)CHR$
(13 * (FUN>18 AND FUN<
21)) CHR$(7);:NEXT
FUN:CHIP=26.7:FOR GARBAGE
=SFAL TO 255:POKE 6502/
CHIP,GARBAGE:VTAB 7 : LIST :
PRINT CHR$ (7) : NEXT GARBAGE
```

GS/OS
#1: Contents of System.Disk and System.Tools

Apple II Technical Notes
Developer Technical Support

Part 2 of 3

Revised by: Matt Deatherage November 1989
Written by: Matt Deatherage November 1988

Contents of System.Tools

Icons Additional icons for the Finder. This folder is currently empty.
System A directory containing additional parts of GS/OS not found on System.Disk.
CDevs Directory with additional Control Panel Devices.
AppleShare Allows users to choose and log onto AppleShare file servers.
ATIWriter Allows users to choose ImageWriter printers on AppleTalk networks for use with the Print Manager.
ATLQIWriter Allows users to choose ImageWriter LQ printers on AppleTalk networks for use with the Print Manager.
ATLWriter Allows users to choose LaserWriter printers on AppleTalk networks for use with the Print Manager.
DirectConnect Allows selection of direct-connected printers.
Desk.Accs Directory with additional desk accessories.
CDRemote An updated version of the CD Remote new desk accessory which ships with the AppleCD SC. This version works with the SCSI Manager in System Software 5.0.
VideoMix.NDA An updated version of the VideoMix new desk accessory which ships with the Apple II Video Overlay Card.
Drivers Directory with additional device drivers for GS/OS and the Toolbox.
Apple.Midi The Apple MIDI Interface driver for the MIDI Tools.
AppleDisk5.25 The driver for Apple 5.25" disk drives, including Disk II drives and Apple UniDisk 5.25 drives. This driver is required for GS/OS to recognize 5.25" disk drives.
AppleTalk The AppleTalk port driver for the Print Manager. It works with either serial port when configured for AppleTalk.
AT.IW.PSetup This file contains the same information as the file Printer.Setup for an ImageWriter printing through AppleTalk. The Installer replaces the file Printer.Setup on the destination disk with this file and renames it Printer.Setup.
AT.IWLQ.PSetup This file contains the same information as the file Printer.Setup for an ImageWriter LQ printing through AppleTalk. The Installer replaces the file Printer.Setup on the destination disk with this file and renames it Printer.Setup.
ATalk The main AppleTalk GS/OS driver.
ATP1.ATROM AppleTalk protocols to patch the IIGS ROM.

Continued next page

ATP2.ATRAM AppleTalk protocols not in ROM.
Card6850.MIDI The driver for 6850-based MIDI interface cards for the MIDI Tools.
Epson The Epson(R) printer driver for the Print Manager.
EPSON.PSetup This file contains the same information as the file Printer.Setup for an Epson printing through the parallel card driver. The Installer replaces the file Printer.Setup on the destination disk with this file and renames it Printer.Setup.
ImageWriter The ImageWriter driver for the Print Manager.
ImageWriter.LQ The ImageWriter LQ driver for the Print Manager. This driver currently has no more functionality than the Image Writer driver.
IW.PSetup This file contains the same information as the file Printer.Setup for an ImageWriter printing through the printer port. The Installer replaces the file Printer.Setup on the destination disk with this file and renames it Printer.Setup.
IWEM PostScript(R) program which allows a LaserWriter emulate an ImageWriter. A user can load it into the LaserWriter with the LaserWriter CDev, and it is automatically invoked when printing through the slot associated with AppleTalk.
IWLQ.PSetup This file contains the same information as the file Printer.Setup for an ImageWriter LQ printing through the printer port. The Installer replaces the file Printer.Setup on the destination disk with this file and renames it Printer.Setup.
LaserWriter The LaserWriter driver for the Print Manager. This driver works with any LaserWriter with PostScript. It does not work with the LaserWriter IISC.
LW.PSetup This file contains the same information as the file Printer.Setup for an LaserWriter printing through AppleTalk. The Installer replaces the file Printer.Setup on the destination disk with this file and renames it Printer.Setup.
Modem The modem port driver for the Print Manager Parallel.Card A driver for some parallel printer interface cards for the Print Manager. This driver works with the Apple Parallel Interface Card, as well as several other parallel interface cards.
Printer The printer port driver for the Print Manager.
SCC.Manager The GS/OS supervisory driver that arbitrates hardware-level usage of the SCC in the Apple IIGS.
SCSI.Manager The GS/OS SCSI Manager, the supervisory driver that arbitrates hardware-level usage of Apple II SCSI cards.
SCSICD.Driver The GS/OS driver for the AppleCD SC drive. This driver is required for GS/OS to recognize CD-ROM drives.
SCSIHD.Driver The GS/OS driver for SCSI nard disks. This driver is required for GS/OS to recognize SCSI hard disks.
UniDisk3.5 The GS/OS driver for UniDisk 3.5 drives. This driver is required for proper operation of UniDisk 3.5 drives. Using the UniDisk with GS/OS without this driver eventually corrupts media.
FSTs Directory with additional File System Translators.
AppleShare.FST The AppleShare FST which allows GS/OS to access AppleShare file servers.
HS.FST The High Sierra FST which allows GS/OS to access CD-ROM discs formatted in the international standard High Sierra or ISO 9660 formats. This FST is read-only; it only performs read operations.
System.Setup Directory with additional initialization files.
AppleIIVOC.INIT An initialization file used by the Apple IIGS Video Overlay Card tool set.
ATInit The AppleTalk initialization file.
ATResponder The AppleTalk responder, used for AppleTalk network management.
Tools Directory with additional tools.
Tool032 MIDI Tools, V1.3.
Tool033 Video Overlay Card tool set V1.1
Fonts Directory with additional fonts. This directory is currently empty.
Scripts This directory contains all the scripts for the Installer. On launch, the Installer looks in its parent directory for the Scripts directory and the scripts it contains.
ADV.DISK.UTIL Script to install the Advanced Disk Utility program.
APPLE.MIDI Script to install the Apple MIDI Interface driver and tool set.
APPLEDISK5.25 Script to install the 5.25" disk driver for GS/OS.
APPLESHARE Script to install AppleShare.
Aristotle.Patch Script to install a change to Aristotle for easier class transition.
ATIMAGEWRITER Script to install the ImageWriter printer driver for the Print Manager, as well as the files necessary to work with AppleTalk.
ATIMAGEWRITERLQ Script to install the ImageWriter LQ printer driver for the Print Manager, as well as the files necessary to work with AppleTalk.
CARD6850.MIDI Script to install the 6850-based MIDI Interface card driver.
CDROM Script to install the High Sierra FST as well as the SCSI Manager and SCSI CD--ROM driver for GS/OS.
DCIMAGEWRITER Script to install the ImageWriter printer driver for the Print Manager, as well as the files necessary to connect it to a serial port.
DCIMAGEWRITERLQ Script to install the ImageWriter LQ printer driver for the Print Manager, as well as the files necessary to connect it to a serial port.
EPSON Script to install the Epson printer driver for the Print Manager, as well as the parallel card driver.
FONTS Script to install additional fonts. No additional fonts are currently supplied.
INST.SYS.MIN Script to install a minimal GS/OS system on a given destination volume.
INST.SYSF.NOFIN Script to install a minimal GS/OS system,without the Finder, on a given destination volume.
INSTAL.SYS.FILE Script to install a GS/OS system, with the Finder, on a given destination volume.
LASERWRITER Script to install the LaserWriter printer driver for the Print Manager, as well as the files necessary to work with AppleTalk.
Local.Net.Boot Script to create a 3.5" floppy disk with the minimum configuration necessary to boot locally but log onto an AppleShare file server.

Continued next page

NAMER Script to install Namer II and related AppleTalk files.
Quick.Logoff Script to add a quick logoff feature to AppleShare.
SCSI.HARD.DISK Script to install the SCSI Manager and SCSI hard disk driver for GS/OS.
Server.Sys.File Script to install System Software 5.0 on an AppleShare File Server.
UNIDISK3.5 Script to install the UniDisk 3.5 driver for GS/OS.
VIDEOMIX Script to install the latest versions of the Apple II VideoMix software and tools.

Installer The Apple IIGS Installer program. This program makes use of scripts found in the Scripts directory on this disk to install parts of the system, as well as third-party applications, without the user needing to copy individual files.

AppleTalk This directory contains additional AppleTalk files and utilities for AppleShare and AppleTalk.
Boot.Driver A driver for AppleShare that GS/OS loads before the other drivers are loaded and which remains resident in memory after the boot process is finished. Installed on servers by the Installer script Server.Sys.File.
Display.0
Namer This directory contains the Namer II application to rename AppleTalk devices.
MtxAbs.0 MouseText code routines for by Namer II.
Namer.II The Namer II application (a ProDOS 8 program).
Namer.0 Additional code needed by Namer II.
QuickLogoff An initialization file used to add a quick logoff feature to AppleShare.
Start The AppleShare startup program which is installed in place of the Finder on AppleShare volumes. It allows the user to log on and then launches the server startup program for the user's machine.
Adv.Disk.Util The Advanced Disk Utility program which allows for partitioning of SCSI hard disks, as well as erasing, initializing, and zeroing volumes or partitions.

WHAT IS BAUD?

by Keith Petersen

Anyone reading technical echomail may have noticed a large number of messages about baud rates, bit rates, band widths, and modulation techniques involved with modems. There is a fair amount of confusion relating to baud rate verses bit rate and how they are limited by the telephone line band width. This is nothing new, texts on the subject generally avoid the term "baud" except within the narrow context where it is germane. This article will define some of the various terms used in data communications, and discuss limitations of phone lines to communication speed.

Serial transmission of data is the most common method of moving data over distance, and the most common way of interfacing serial devices to each other is RS232. The essence of RS232 is signal levels which represent ON or SPACE levels, and OFF or MARK levels. ON is any voltage between +3 volts and +15 volts while OFF is -3 to -15 volts. The signal shape is really a square wave centered at zero volts and is a baseband signal. A baseband signal is one whose spectrum extends down to zero hertz, or near zero. The signal is polled at regular intervals to determine its voltage, and therefore the data it contains. RS232 has only the two voltage levels defined so it is a binary coded signal. Besides signal shape and levels, RS232 defines a number of parallel signals such as "clear to send" and "data terminal ready". Some of these signals are status flags such as "carrier detect", while others are meant as flow control, such as "data terminal ready" or "request to send". Since a typical modem provides only the transmit and receive functions, the flow control must be done within the data stream. Some modems however send data as packets with error control (akin to XMODEM) that can recreate all of the hardware signals so as to make a distant terminal appear to be hard wired.

Regular phone lines were designed for voice communications, but due to their wide use and therefore low cost, they have been widely used for data communications. A baseband signal such as is found in RS232 doesn't lend itself to phone lines since they don't have frequency response down to D.C. or zero hertz. When voice grade phone lines were designed the band of frequencies they had to pass was determined by the nature of human speech. Very low frequencies (below 300 hz) and higher ones (above 3000hz) were found to be unnecessary for voice recognition at the receiving end, as a result the total "BAND WIDTH" available to a phone user is only around 2700 hz. BAND WIDTH when used to describe frequency response is the difference in hertz between the high and low, half power frequencies. In electrical systems, power dissipated across a load (or resistance) in terms ofvoltage is: V * V / R. Where

Continued next page

"V" in this case will be the amplitude of the sign wave being applied to the circuit. In between the high and low half power frequencies there will be a frequency where the amplitude of the response wave will be maximized, call that voltage Vm. The half power points will be reached when V=Vm/sqrt(2). The output power at that point would be Vm * Vm / (2 * R) which is one half the mid band power. The cause for the fall off of power at different frequencies is due to capacitive and/or inductive elements in the circuit. In phone lines capacitance comes naturally in parallel, that is it tend to shunt the signal to ground. In this configuration the higher the frequency the lower the "resistance" will be. Inductance is added on purpose by the phone companies in the form of loading coils which are added to decrease signal attenuation in the mid frequencies. In any case the band width of a voice grade line is strictly limited so that many calls can be stacked on top of each other, in order to use transmission lines more effectively. Data equipment must strive to make the best use of this narrow band width. There is a hard limit to the amount of data that can be sent through a telephone line as will be seen later.

The signal type of choice to carry data through phone lines is the sine wave. A sine wave has but one frequency associated with it. This means that if its frequency is within th band width of the line carrying it, then the received sine wave will not have its shape altered due to clipping of the high frequency components. This can't be said for the square or triangular waves which requires an infinite band width to fully describe them. The sine wave is simply defined:

v= A * sin(w*t + p)
A is the amplitude (in units of volts for this exercise)
w is the frequency which must be in radians per second
t is time in seconds
p is the phase angle in radians

Information can be encoded by the sine wave in three different ways. By altering "A" which is amplitude modulation (AM), by altering "w" which is frequency modulation (FM), or by altering "p" which is phase modulation (PM). There are mixed modes which come into use in the more exotic modem schemes, used to get the really high bit rates.

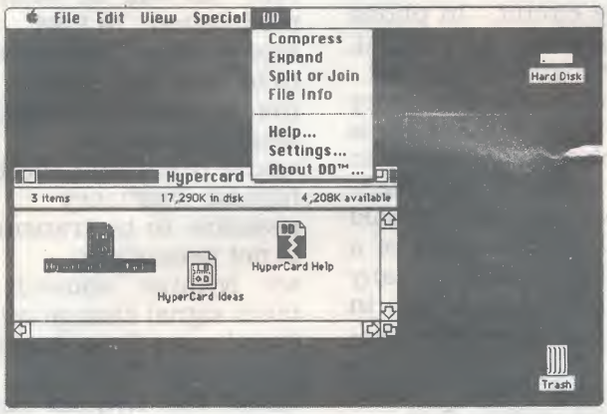
FSK or frequency shift keying was the most widely used method for data transfer through modems. This is a FM process whereby a RS232 MARK would be represented by the presence of one frequency while a SPACE would be indicated by another frequency.

Now is the time to introduce the term BAUD. A "BAUD" is the time interval in which data is carried, that is the minimum time in which a signal holds a single state which the receiver is to recognize and convert into data. The baud rate is how many BAUD times occur in a second. The baud rate is NOT the same as the bit rate as will be seen later in multiple state modulation. In FSK type modems (Bell 103) the baud time happens to be the same as the bit rate since each signal state encodes a single bit. Many would think that the baud rate is limited to highest frequency available to be transmitted (3000 hz) but this is not necessarily so. Nyquist showed in 1928 that the maximum signal change rate (baud rate) for a band width "W" would be 2*W baud. This is called the Nyquist rate and is an upper limit that assumes no inter-symbol interference. This could be visualized by considering a sine wave. Each cycle has a positive and negative part. The amplitude in each part could be independently altered while still having a sine wave, therefore a 1200 hz signal could be changed 2400 times a second which is 2400 baud. This type of change (AM) is not very useful in phone lines since it is the type of change most commonly caused by natural phenomena. In Bell 103 the baud rate is commonly 300 which is over 3.5 cycles at the lowest carrier frequency. The practical considerations of detecting frequency changes requires about 1.5 cycles so 300 baud is some what conservative.

PSK or phase shift keying gets by the frequency barrier that keeps FSK from producing the higher bit rates. In PSK (a PM method) the only parameter in the sine wave changed each BAUD is the phase angle "p". The Bell 212A modem specification uses a four level phase modulation technique. The term four level means that four different phases are used and detected by the receiver during each BAUD. The number of bits an M level state can represent is n=log2(M) or log(M)/log(2). A four level state can represent two bits during each baud. In the

Continued next page

Double the Capacity of Any Disk Drive



MacUser 1/2

DiskDoubler turns your 20MB drive into a 40MB

DiskDoubler is a remarkable new software program that dramatically increases the storage capability of any hard drive or floppy disk. Simply click on a file and select "Compress" from the DiskDoubler menu on the Finder. Blindingly fast, DiskDoubler compresses your file by a factor of two, three or even four times.

Using a DiskDoubler-compressed file is even simpler. Simply click on the file and it automatically decompresses and then launches normally. MacUser's toughest reviewer Steve Bobker reported: DiskDoubler's "Performance is outstanding." Bobker went on to give DiskDoubler an extremely high 4.5 mouse rating and pleaded for just one improvement—the ability to read StuffIt files.

Version 2.0 of DiskDoubler is now available and it automatically reads and decompresses both StuffIt and PackIt files. Easily and transparently. And that should make Mr. Bobker and every DiskDoubler user quite happy.

DiskDoubler is brilliantly simple to use and install. Just move the DiskDoubler INIT into the system folder and restart. DiskDoubler appears on the Finder menu bar. And DiskDoubler uses an ultra-safe scheme that prevents data loss—even if you pull the power plug while compressing.

Everyone needs DiskDoubler. It compresses files by an average of 50%. Many TIFF and other graphic files are reduced up to 98%. It's like getting another hard drive for a fraction of the cost. In Silicon Valley, home of the Macintosh, DiskDoubler has become a quiet legend. It has become a best-selling product based entirely on recommendations from satisfied users.

Buy DiskDoubler today and join the thousands of experienced Mac users who've discovered that there's no easier or more economical way to increase the performance of their disk drives.

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212A specification +90 degrees would be 00, 0 degrees 01, +270 degrees 11, and +180 degrees 10. The 212A baud rate is 600 which means the bit rate would be:

bit rate=600 BAUD/second * 2 bits/BAUD= 1200 bits/second

To increase the bit rate to the next state would require 3 bits/baud or 8 phases. To get 2400 bps using such a scheme would require 16 different phases (22.5 degrees apart). The problem here is that one class of noise present in phone lines called "phase jitter" can cause phase errors up to and sometimes over 30 degrees. To avoid the bulk of this type of noise the phase angle difference should be kept above this amount. The 2400 baud modems common today use a form of QAM (quadrature amplitude modulated). This method uses a combination of two waves with different amplitudes to get the required 16 levels. A QAM signal can be expressed in equation as follows:

s(t)=a(t)cos(wt+p)+b(t)cos(wt+90+p)

a(t) is the in-phase modulating wave form while b(t) is the quadrature modulating wave form. During each baud a(t) and b(t) are constants so the equation simplifies to:

s(tn)=c*cos(wt+theta+p) {p is a single arbitrary phase angle tn
stands for a specific baud time
c=sqrt(a*a+b*b) theta=atan(b/a)}

The new pure sine (cosine) wave has amplitude and phase differences which can multiply the number of states possible. If there are 4 values for amplitude and 8 values for phase then the signal could have 32 different states or five bits. The random variations in phase "p" has less effect the outcome since it effects both waves the same. The phase difference in the resultant wave is due to the interaction of the two wave forms.
QAM is the method used to get up to 9600 baud out of a phone line. Other types of noise are present in a phone system, and are mostly due to switching and cross over with other wires. The error rate at the higher bit rates would be unacceptable if there weren't some error recovery used. This is now quite easy to do from a hardware standpoint, since the memory and processing power needed to do it takes a small amount of space and cost little enough to make the increase in bit rate worth it. The ability for high speed modems to run will increase due to another reason. More and more fiber optic phone line will replace conventional ones. These are immune from many of the noise sources that effect copper wires, sources such as RF and magnetic fields.

The ultimate bit rate that could be "pumped" through a phone line is fixed by the band width AND the signal to noise ratio. Shannon's law relates random bit transmissions/second to band width and signal to noise ratio. It is derived from the concept of entropy. Entropy is a measure of randomness in a system. It is really a thermodynamic property but has applications in information theory. The maximum bit rate for a channel with signal power S and noise power N is given by:

C=BW log2(1+S/N) where BW is the band width, S is the signal power and N is the noise power.

With a typical band width 2600 hz and a typical signal to noise ratio of 30db (or 1000/1) the bit rate would be:
bit rate=2600 * log2(1001) or 25,914bps
The noise factor is assumed white or Gaussian. This kind of noise is unavoidable in electrical systems. In fact "N" can be calculated by:

N=kTW where k=1.37e-23 joule/degree
T is absolute temperature (Kelvin)
W is the band width in HZ

This product gives "N" in terms of joules per second or watts.
At room temperatures noise would be on the order of 1e-17 watts over a 2600 hz band width. If a phone signal were just 0.1 watts the signal to noise ratio could be as high as 160db. In practice it is about 30db so it can be expected that the signal to noise ratio will increase in the future so that the top bit rates will increase, and this increase will happen without an increase of the band width available.

One last problem to consider with the high speed modems is compatibility. To get 9600 bps from a 600 baud signal would require 65,536 levels in a state. There is no obvious way in which to assign a level to a 16 bit pattern so the manufacturer must invent an "ALPHABET" for that conversion. Until an alphabet is standardized as well as error recovery techniques there is simply no way the modems will talk to each other.

GLOSSARY:

Alphabet: A table to convert signal states into characters they represent
Amplitude modulation: Where information is encoded by changes in amplitude only.
Band width: Range of frequencies within the half power limits. That is the difference between two -3db frequencies.
Baseband: The signal at its original frequency

Continued next page

and shape.

Baud: The minimum time where all signal parameters are held constant.

Baud rate: The number of times the basic signal can be changed per second.

Bit rate: The number if bits per second passing through a channel. In a modem it is the baud rate times the number if bits per baud.

Decibel (db): 10 * log10(p2/p1) where p2 is referenced to p1. Both p1 and p2 represents power. For voltage db is calculated 20 * log10(v2/v1)

Frequency modulation: Where information is encoded by changes in the carriers frequency.

FSK: A way of represents data by a discrete change in frequency of the carrier.

Hertz: Number of events per second.

Modulation: The process of varying a signal according some aspect of another signal.

Phase: The angular displacement of a cyclic signal
In a sine wave Y=A sin(wt+p) p is the phase.

Phase modulation: Technique of changing phase of signal to represent changes of the baseband signal.

References:

1.*Clark, A.P., 'Principles if Digital Data Transmission' 2nd ed. (1983)
2. Martin, James, 'Telecommunications and the Computer', (1979)
3. 'IBM PC Technical Reference', (July 1982)
4. 'Hayes Smartmodem 1200 manual'

*Reference (1) gives the most technical detail and over 500 other specific references.

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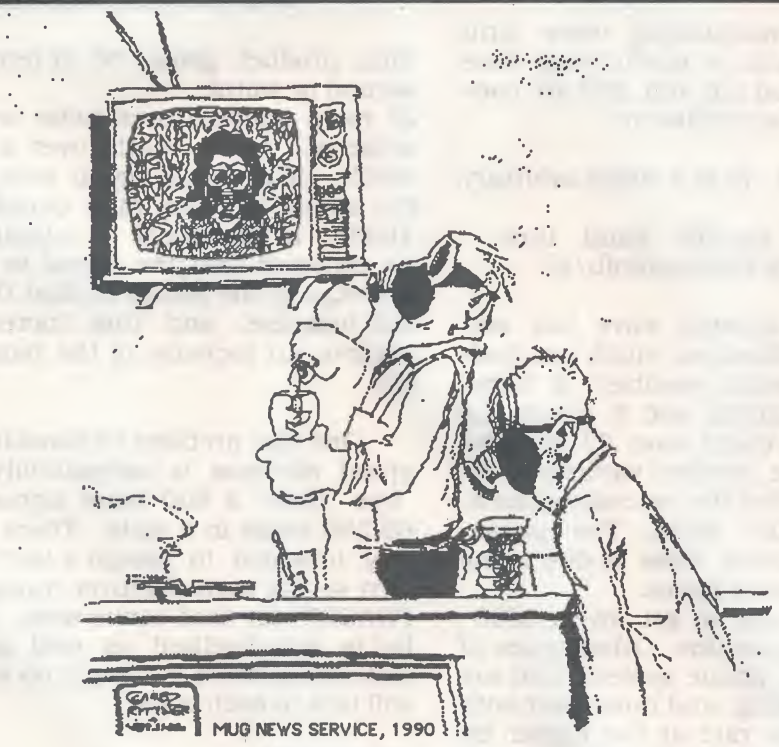
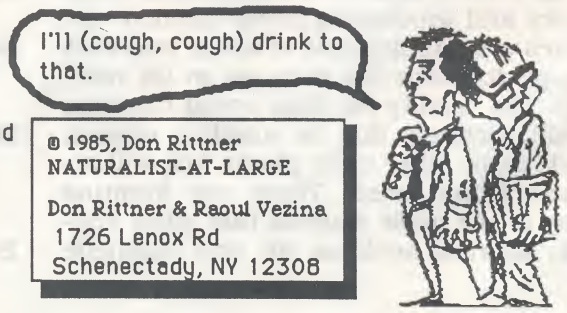


"Meanwhile,, on the national front passage of the Clean Air bill doesn't look good..."



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NATURALIST-AT-LARGE

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Personal Training Systems®

reviewed by Dino Porcaro

Part 1 of 2

The Club has purchased four Personal Training Systems® modules which include a disk, an audio cassette and a summary card:

MacTeach™ -	Basic Macintosh Operations for the MacPlus or SE with Hard Disk
MacTeach™ -	Beyond the Basics
Learn Word™ -	Beginning Level
Learn Word™ -	Intermediate Level

These come with a disk, an audio cassette and a lesson summary card. To work through each cassette requires 90 minutes. The lessons have been designed in a way that one may procede through them at any pace and stop to revise a partucular section at will.

The novice may progress from one level to the next in an easy step by step approach; the language used is clear, albeit American.

MacTeach™ Audio Training Series for Basic Macintosh Operations for the MacPlus or SE with Hard Disk

This module is specifically designed for people who have practically no knowledge of the Macintosh; it has eight lessons covering familiarization with the information displayed on the start up screen from the Menu Bar, the contents and operation of the pull down menus, to the Trash Can. It contains ready-made exercises with which the user is asked to work.

One will learn how to manipulate the information displayed in the various windows that appear when menus are selected; how to create new folders, new documents and save them to the appropriate folder or disk. The novice will also know how to make full use of the cut, copy and paste features of the Macintosh.

MacTeach™ - Beyond the Basics

This module is composed of nine lessons covering the following:

	<u>Lesson 1</u>
Control Panel:	What are Desk Accessories? How to Use Control Panel
	<u>Lesson 2</u>
Font/DA Mover:	Installing New Desk Accessory Installing New Fonts How to Use Key Caps
	<u>Lesson 3</u>
Find File:	When to Use Find File

Continued next page

How to use Find File
Return File to Original Location

Lesson 4

Chooser:
When to Use the Chooser
How to Switch between Printers

Lesson 4

Hints and Shortcuts:
How to Eject a Disk
Close All Open Windows
Locking an Entire Disk or an Individual File
Select more than One Icon
Align the Icons
Align Icons without Gaps
Print the Screen Display

Lesson 6

Using MultiFinder:
Engage MultiFinder
Disengage MultiFinder
Switch between Applications that have been Opened
Check the amount of Memory available

Lesson 7

Background Printing:
How to use Background Printing
How to engage Background Printing
How to prioritise Printing of Files

Lesson 8

Apple File Exchange:
How to Import Files saved in other Formats
so that the Macintosh can recognise them

Lesson 9

Backing Up:
How to Backup the Hard Disk
How to Copy Missing System Files into
the System Folder on the Start Up Drive

Learn Word™ - Beginning Level

This module is composed of eight lessons.

Lesson 1: Entering & Editing Basics - Start the program Word™, Press Return Only, Erase Mistakes, Select a Word, Remove Highlighting, Delete a Word, Change a Word, Insert Words, Select a Paragraph, Move a Paragraph, Save Your Work, Close a File.

Lesson 2: Printing - Open a File, Preview the Printed Page, Enlarge the Preview Page, Reduce Enlarged Preview Page, Add Page Numbers while Previewing, Remove Page Numbers while Previewing, Change Margins while Previewing, Preview One Page at a Time, Print the File, Return to Regular Document from Preview Screen, Print Part of a File.

Lesson 3: Margins & Justification - Use Full Menus, Show the Ruler, Change Justifications, Create Double-Spacing, Select Entire Document, Bold Letters, Change Font Size, Change Margins, Create Numbered Paragraphs.

Lesson 4: Tabs and Tables - Create a New File, Set a Tab, Remove a Tab, Change Existing Table's Column Positions, Add Up a Column of Numbers, Paste Answer into Document.

Lesson 5: Spelling Checker - Start the Spelling Checker, Suggest Correct Spelling, Add a Word to the Dictionary, Type in Correct Spelling, Check Spelling of Part Document, Remove Words from Dictionary.

Continued next page.

Lesson 6: Boxes & Special Symbols - Create a Box, Change Size of Box, Make Two Paragraphs appear in One Box, Create Bullets, Create Foreign Language Symbols, View the Option Keycaps.

Lesson 7: Headers and Footers - Create a Header, Place Page Number in Header/Footer, View the Header and/or Footer.

Lesson 8: Printing Long Documents - Break Document into Pages, Jump to a Specific Page, Change Page Breaks, Remove Page Breaks.

Addressing Envelopes on a Laserwriter

New Tips for an Old Chore

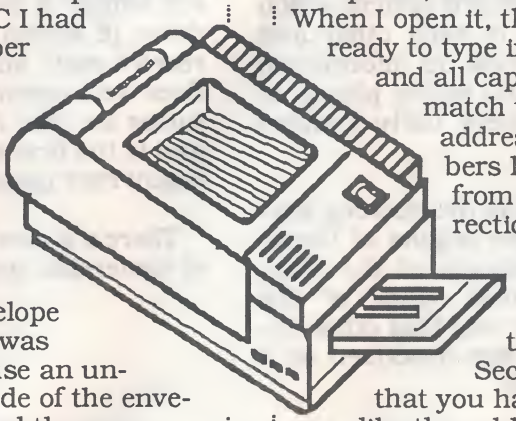
by Ray VanHook

I use cheap envelopes for mailing out almost everything: bills, payments, business letters (where the envelopes are going to be thrown away by the secretary opening the letters anyway) and most of my other correspondence. An envelope has served its purpose when the Post Office delivers the letter, and most of them head straight for the waste basket. So, who needs an expensive envelope for the normal everyday correspondence ?

When I started addressing these inexpensive envelopes on the LaserWriter SC I had the problem of the envelope paper creasing as it went through the rollers. The less expensive envelopes you buy at the drug store are made of thinner paper than the better grade sold through stationary stores. I imagine that the combination of the heat and the pressure of the rollers caused this thin envelope paper to bunch up, and then it was pressed in such a way as to cause an unsightly crease on the far right side of the envelope If you have ever experienced the same problem, then what I am about to say will be a helpful hint. I solved this difficulty by cutting a piece of heavy magazine paper to a size just slightly less than the envelope. Now, I insert my cut-out in the envelope before feeding it through the LaserWriter; and the creasing problem has been solved. Put the cut-out aside for next time. If you are addressing envelopes of different sizes, then you are going to need cut-outs in corresponding sizes.

I don't have a lot of repetitive mailing which requires manual addressing of envelopes. Most of the bills to be paid come with their own pre-printed return envelopes. Therefore, I have been getting along by addressing each envelope as it comes up. I do this with templates in FullWrite Professional, but you could use any word processing program with similar results. I have two procedures.

First, one of my templates, which I have labeled with the catchy name, "Envelope/Template", has only my return address. When I open it, the forwarding address is ready to type in. I like to use bold print and all caps on my envelopes, to match the already inserted return address. The program remembers how to print the envelope from my previous page setup directions; except for the fact that I have to tell the LaserWriter that the envelope will be manually fed into the printer.



Secondly, for those envelopes that you have to make out for bills, like the cable TV bill, (it doesn't come with a pre-printed return envelope), I have a system which seems to work fine for me and may be of some help to you if you haven't found a better way. You know you are going to need twelve of these during the year. So, I make up a template for the address in FullWrite Professional and save it in my letter file. I keep one folder on the hard disk for letters, and most of these are compiled in FullWrite Professional. They are stored in alphabetical order. When I get ready to send out the cable

Continued next page

TV bill, I look for "US Cable/ Envelope" in the letter folder, open the template and print out the address. Sometimes, while I have the printer going, I may print out several ahead of time for using them and store them in a desk drawer until they are needed.

Well, I'm sure that my little procedures would not benefit somebody in an office who has to mail out hundreds of envelopes. But, for addressing envelopes at home, it seems to work fine for me. I have forgotten everything I ever knew about addressing envelopes on a typewriter!

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MUG NEWS SERVICE 1990, Reprinted fro the Mac Monitor

The LaserWriter II, shown in this article, was drawn in the graphics program—FullPaint.

MUG Editor's note: don't forget the Easy Envelopes Plus DA in the user group's disk library. Not only is it great for printing envelopes, it will also maintain a mailing list.

Fifth World Conference on Computers in Education

Peter J. Carter

Can you imagine more than 2300 teachers and other educators meeting in one place? It happened at the Darling Harbour Convention Centre July 9..13th for WCCE90, and about one third of the delegates were from overseas.

We met for the presentation of papers, many other discussions, and of course, to meet each other. Many people who have simply been names to me in the past are now real people.

Needless to say, as a principal sponsor, Apple had a high profile, from the time delegates arrived. Part of the registration process was to stand in front of a video camera: our digitsed visages were part of a HyperCard system which allowed us to find details of each other and post messages, as well as look up information about some of the sights (and eating places) of Sydney. In our satchels were natty T-shirts from Apple.

Apple Fellow, Alan Kay, was the opening keynote speaker, discussing the origins of Dynabook and demonstating aspects of the Playground languages and some video of the Vivarium project. Along the way that other operating system (8088 etc.) was described as a screwdriver without a handle.

Apple had a prominent stand in the exhibition, with all the latest goodies, including several CD-ROM and video machines. On Tuesday morning there was a presentation in the main auditorium entitled 'Multimedia in Education- Then, Now and Soon', and HyperCard (with or without other media) featured in other presentations.

Thursday was Apple's day in the 'Fly on the Wall Classroom', where students from a Sydney primary school used Macs and GSs to prepare a newspaper. That evening, Apple hosted an 'Extravaganza!' at the nearby Powerhouse Museum, with Bill Nielson and his MacRock show. I didn't go, but several others were hoarse next morning after trying to talk above the sound of it all.

Also on Thursday, on a launch trip on the harbour in dismal weather, the newest version of Logo was given its Australian launch. It's LogoExpress, a Logo for communications. LogoExpress is available for Apple and MS-DOS and incorporates word processing and communications. It drives autodial modems and it's simply a matter of writing simple procedures (it comes with some) to log in, send and receive mail, and all the other things that one does with communications packages. The bonuses are that it's easy to use, like LogoWriter, and is the first system able to send and receive LogoWriter pages.

There's a new book on my shelf: 1090 pages of conference proceedings.

MEMBER MUG NEWS SERVICE

Transferring Graphics from Macintosh to Apple IIGS.

by Bob L. Allen (GEnie: B.Allen9)
Eat-A-Bug Software, 22916 Via Pimiento, Mission Viejo, CA 92691.

In two previous articles (MNS Jan and Feb, 90) I discussed the how to transfer graphics between Apple II series and Macintosh computers. In this third installment I've outlined how to transfer images from a Macintosh to an Apple IIGS.

There are three methods you can use for this transfer: use The Graphic Exchange, use Super Hires Convert 2.1, or use GIF files.

The Graphic Exchange, by Roger Wagner Publishing, Inc. (1050 Pioneer Way, Suite P, El Cajon, CA 92020) can read Macintosh disks directly and makes a clean & simple conversion of MacPaint files to Apple II format. Although images can be transferred to various Apple II formats, MacPaint images look best when converted to IIGS-specific screen modes. Consult the program's manual for directions.

Super Hires Convert 2.1 also allows conversion of MacPaint files to Apple II format, however, it can only read ProDOS disks. To use it, save the MacPaint image (while on the Macintosh), launch Apple File Exchange, insert a ProDOS disk and transfer the graphic file onto the ProDOS disk. On the Apple IIGS, launch SHR.Convert from the Finder and use that ProDOS disk as the source for the image. Choose "Macintosh" as the picture type to convert, then load & convert the image. When finished, save it as a "$C0,2 Apple Preferred" graphic.

The use of GIF files is a little more involved, but once you master the process you will be able to transfer files to and from virtually any computer system that uses them.

Quick procedure: On a Macintosh, create a graphic image and save it in MacPaint format (or, if your paint program allows it, save it in GIF format). Launch Vision Lab, open the file as a MacPaint image, save it as a GIF file. Use a filetype converter to change its filetype to "06 ". Launch AFE and transfer the file onto a ProDOS disk. On an Apple IIGS, launch SHR.Convert 2.1, open the GIF file, then save it as a $C0 file for use with your paint programs or HyperStudio.

1. Macintosh:
a. Start up the computer and launch your paint program. Create a graphic, save it to disk as a MacPaint file, and return to the Finder.
b. From the Finder, launch Vision Lab. Open the file as a MacPaint file. Save the image as a GIF file. Return to the Finder.
c. The file is saved as a GIF file with a filetype of "GIFf" but it needs to be filetype "06 " to be used on the Apple IIGS. To do this, launch Filetype Changer (or any other filetype changing utility) and select Macintosh ('GIFf') to ProDOS ('06 ')". Once completed, return to the Finder.
d. Launch AFE. Select the location of the GIF file, then insert the ProDOS disk that will receive the file. Click on the file, then click on the Transfer button. When completed, return to the Finder.

1. Apple IIGS:
a. Launch Super Hi Res Convert 2.1 from the Finder. Select the picture type to convert from the choices in the upper left window; in this case choose "Computer independent". Then select "GIF" from the list in the lower left window. Next choose "Load & convert..." from the File menu and open the desired file. If the image is larger than your computer's display, scroll the image to the position you want it, then click the mouse to get back to SHR.Convert's menu.

Now you must save the graphic in an Apple IIGS format. Select "$C0, 2 Apple Preferred" from the "Select format for saved pictures" in the upper right window. When asked to select the size of the saved picture, choose "One screen wide, one screen high" (you could choose any of the listed sizes, but you can try those later). When the file is completely saved, quit from SHR.Convert and return to the Finder. The image can now be used by a IIGS-specific paint program or brought into HyperStudio.

Contact me if you have any questions or comments.

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